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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)

Implementation of Section 17 of the)
Cable Television Consumer Protection)
and Competition Act of 1992)

Compatibility Between Cable Systems)
and Consumer Electronics Equipment)

To: The Commission

ET Docket No. 93-7

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COMMENTS OF THE SACRAMENTO METROPOLITAN
CABLE TELEVISION COMMISSION

1. The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained by the Sacramento Metropolitan Cable Television Commission to prepare comments to ET Docket 93-7, concerning compatibility between cable television systems and consumer electronics equipment.
2. The Sacramento Metropolitan Cable Television Commission (SMCTC) is a joint powers authority formed by the Cities of Sacramento, Folsom, Isleton, and Galt, and Sacramento County. The SMCTC is the cable television franchising authority for these municipalities.
3. Hammett & Edison, Inc., is a professional service organization that provides consultation to commercial and governmental clients on communications, radio, television, and related engineering matters. Hammett & Edison has had extensive experience in cable television technical matters, including evaluation of completing franchise bids, verification of performance of newly-built and re-built cable television systems, drafting of municipal cable



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television technical standards, and similar cable-related engineering projects. In 1969, it was Hammett & Edison that petitioned the Commission to adopt technical standards for cable television systems.¹ That petition for rule making resulted in the Commission's first set of cable television technical standards. Hammett & Edison has additionally prepared for municipal clients or filed its own comments in several recent cable-related rule makings, including Mass Media Dockets 85-38 and 91-169, concerning cable television technical standards, and Mass Media Docket 92-259, concerning must-carry issues.

VIDEO MAGAZINE ARTICLE

4. SMCTC wishes to bring to the Commission's attention an article that appeared in the October 1993 issue of *Video Magazine*, "Showdown at Compatibility Gap." SMCTC believes that this article is an excellent summary of the cable television/consumer electronics compatibility problem, and hereby incorporates that article as part of its comments to ET Docket 93-7, as Exhibit 1.

PROPOSED RULES ARE WELL-FOUNDED AND SHOULD BE ADOPTED

5. In its December 1, 1993, Notice of Proposed Rule Making (NPRM), the Commission proposed to adopt certain rules to improve and ultimately to attain full compatibility between cable television services and consumer electronics equipment. These can be summarized as follows:

¹ *Petition for Institution of Rule Making Proceeding to Establish Standards Governing the Technical Performance of Community Antenna Television Systems*, dated November 14, 1969, and filed on November 19, 1969. This filing resulted in RM-1530 and Docket No. 18894, *In the Matter of Amendment of Subpart K of Part 74 of the Commission's Rules and Regulations with Respect to Technical Standards for Community Antenna Television Systems*. A Report and Order was adopted on February 2, 1972, establishing the Commission's first set of cable television technical standards. The effective date of the new technical standards was March 31, 1972.

Short-term Mitigations

ST-1. Cable systems using scrambling must provide supplementary equipment to subscribers, such as set-top converters with dual decoders, built-in timers, and bypass switches, to enable the operation of extended features and functions of consumer equipment that make simultaneous use of multiple signals. Subscribers requesting such equipment could be charged for the installation of the equipment and for its on-going use.

ST-2. Subscribers must be provided the option of having all unscrambled signals bypass the set-top converter and directly connect to the subscriber's VCR or TV.

ST-3. Cable operators would be prohibited from scrambling any basic service tier signals.

ST-4. Cable operators must offer subscribers the option of renting remote control units to operate set-top converters, and must take no action that would interfere with subscribers using non-cable provided, commercially available remote control units. Cable operators would be obligated to disable the remote control functions of a set-top converter in cases where the subscriber so requests.

ST-5. Cable operators must provide to their subscribers a consumer education program on compatibility matters. This would include informing subscribers that some models of TV receivers and VCRs may not be able to directly receive all of the channels offered by the cable system without use of a set-top converter.

ST-6. Set-top converters could be obtained from third parties; that is, the cable operator would not necessarily be the sole provider of a required set-top converter.

ST-7. Cable operators that provide set-top converters with remote control capability would be required to provide a list of the makes and models of compatible third-party, commercially available remote control units.

ST-8. The Commission would continue to encourage cable operators to achieve signal security by existing "in-the-clear" technologies, such as trapping, interdiction, addressable taps, and other approaches that do not require scrambling of the cable signal.

ST-9. The effective date of the above new rules would be six months after adoption of final Commission rules in this matter.

Long-term Mitigations

LT-1. Require all TVs sold as "cable ready" to include an updated Decoder Interface connector, to be used with an associated component descrambler unit. The Decoder Interface connector would have to meet the EIA/ANSI Standard 563, "Standard Baseband (Audio/Video) Interface Between NTSC Television Receiving Devices and Peripheral Devices."

LT-2. Require all new set-top converters, TVs, and VCRs to adhere to an anticipated amended Electronics Industry Association (EIA) Interim Standard 6A (IS-6A), "Recommended Cable Television Channel Identification Plan," being developed by the Joint Engineering Committee (JEC).

LT-3. Require all new TVs and VCRs sold as "cable ready" to tune all cable channels over a frequency from 54 MHz to 1,002 MHz; that is, to be able to tune 158 channels.



LT-4. Require all new TVs and VCRs sold as "cable ready" not to exceed a "just perceptible" interference level for adjacent visual carrier levels of up to 3 dB stronger than the desired signal.

LT-5. Require all new TVs and VCRs sold as "cable ready" not to generate internal distortion products exceeding -55 dBc when presented with the full complement of incoming available cable channels.

LT-6. Require all new TVs and VCRs sold as "cable ready" not to exceed a "just perceptible" interference level due to direct pickup (DPU) of undesired over-the-air TV broadcast signals of up to 100 dBu (100 mV/m) field strength.

LT-7. Require all new TVs and VCRs sold as "cable ready" not to couple back into the cable system any signal exceeding -37 dBmV (14 μ Volts in 75 ohms) over the frequency range from 54 MHz to 1,002 MHz.

LT-8. Require all new TVs and VCRs sold as "cable ready" not to exceed existing Part 15 radiation limits when connected to a cable signal with six channels evenly distributed over 54 to 1,002 MHz, and varying in level from 0 dBmV (1,000 μ Volts in 75 ohms) to +25 dBmV (17,783 μ Volts in 75 ohms).

LT-9. Require all new TVs and VCRs sold as "cable ready" and employing input selector switches to comply not only with existing Part 15 isolation standards (isolation of at least 80 dB between 54 and 216 MHz, isolation of at least 60 dB between 216 and 550 MHz), but also with a minimum isolation specification, to be determined, between 550 and 1,002 MHz.

LT-10. Require all new TVs and VCRs sold as "cable ready" and employing input



SMCTC COMMENTS: ET DOCKET 93-7

selector switches to have an attenuation to the input cable signals of no greater than 6 dB.

LT-11. Subject new TVs and VCRs sold as "cable ready," and new component descramblers, to the Notification or Certification process, rather than the present Verification process.

LT-12. Require cable operators to provide component descramblers that are compatible with EIA/ANSI Standard 563 if any cable channels are scrambled, and prohibit cable operators from charging separately for such devices or their installation.

LT-13. Adopt a digital cable signal standard to avoid future compatibility problems that could arise with the introduction of digital transmission methods.

COMMENTS REGARDING SHORT-TERM MITIGATION METHODS

6. SMCTC concurs with most of the proposed short-term mitigation methods. In a few cases, SMCTC believes that somewhat more rigorous short-term mitigation methods than proposed in the NPRM are needed. For example, mitigation method ST-1 should be augmented to require that the required more consumer-friendly set-top converter boxes have a minimum capability of tuning at least eight separate events over a period of at least 7 days, plus the ability to tune the same cable channel at the same time on a weekly basis, where "weekly" can mean either five days per week or seven days per week. SMCTC refers to this as an "8-event/7-day minimum" programmability requirement. For mitigation method ST-2, concerning a bypass capability for unscrambled cable channels, SMCTC believes that cable operators should only be allowed to charge a one-time installation fee for hardware to provide

a bypass capability, and should be prohibited from separately charging for this capability on an ongoing monthly basis. For ST-3, requiring that basic tier signals not be scrambled, SMCTC believes that any signal on the basic tier, even signals optionally included in the basic tier, should be sent in-the-clear. For ST-6, giving cable subscribers the right to utilize suitable third-party set-top converters, SMCTC believes that cable operators should be required to provide a listing of compatible third-party set-top converters, in the same manner that the Commission proposes to require cable operators to provide for third-party remote control units. For ST-7, requiring cable operators to provide a listing of compatible third-party remote control units, it should be sufficient for the cable operator to identify the makes and models of compatible third-party remote control units. SMCTC believes that there is no need to additionally require cable operators to survey the local area to determine the universe of available third-party remote control units; the normal forces of the marketplace will easily rise to this need. With regard to ST-8, involving continued use of in-the-clear technologies such as interdiction or addressable taps for maintaining channel security, SMCTC agrees that the Commission should do all in its power to encourage signal security methods that allow sending cable channels in-the-clear. Finally, SMCTC concurs with the proposed effective date of six months after adoption of final rules in this proceeding for the short-term mitigation methods.

COMMENTS REGARDING LONG-TERM MITIGATION METHODS

7. SMCTC concurs with the majority of the long-term mitigation measures. In a few instances, SMCTC believes that more stringent technical standards are needed; these cases are discussed in the subsequent paragraphs.

8. For mitigation LT-1, requiring "cable ready" TVs to be equipped with an updated



Decoder Interface connector, SMCTC agrees with NCTA, Time-Warner, CVI, Telecable, TCI, and other cable representatives² in believing that this must also apply to "cable ready." VCRs. Further, SMCTC strongly agrees with Time-Warner³ that the Decoder Interface connector must include an intermediate frequency (IF) output, to accommodate radio-frequency (RF) scrambling systems as well as baseband scrambling systems. SMCTC agrees with Time-Warner⁴ that Decoder Interface connectors should become mandatory at the earliest practical date because of the Decoder Interface connector's broad ability to overcome some of the most frustrating incompatibilities⁵ between cable systems and consumer electronics. However, SMCTC suggests implementing this requirement as of December 31, 1995, rather than the December 31, 1996, date suggested in the NPRM⁶.

9. Regarding LT-2 and LT-3, SMCTC concurs with the Commission's proposal to require all TVs and VCRs sold as "cable ready" to adhere to EIA IS-6A. SMCTC believes that the full 54 MHz to 1,002 MHz frequency range should be required in a single step; SMCTC opposes a "migration plan" approach where "cable ready" TVs and VCRs would initially be required only to tune to 750 MHz. SMCTC concurs with the Commission's proposed effective dates for compliance with IS-6A; that is, new or re-built cable systems must comply

² Cable Compatibility Report, at Page 50.

³ Cable Compatibility Report, at Page 51.

⁴ Cable Compatibility Report, at Page 43.

⁵ These incompatibilities include, but are not limited to, the following:

- a. Requiring the subscriber's TV to remain tuned to a single input channel, typically TV Channel 3 or Channel 4.
- b. Making unusable advanced television picture generation and display features such as "Picture-in-Picture."
- c. Making moot on-screen display of channel numbers.
- d. Making unusable timers or other automatic devices to chance the channel of the subscriber's TV or VCR, to allow unattended recording of multiple programs on different channels.
- e. Obligating the cable subscriber to use a space-consuming and clutter-causing set-top converter and complex back-of-set interconnects that often bedevil non-technically sophisticated cable subscribers.
- f. Obligating the cable subscriber to maintain and use two separate remote control units.

⁶ NPRM, at Paragraph 28.

with IS-6A effective one year from the effective date of these new rules, and all cable systems must comply with IS-6A after 10 years.

10. Regarding LT-4, SMCTC agrees with the proposal to require "cable ready" TVs and VCRs not to exceed a criterion of "just perceptible" interference for adjacent channel peak visual carrier levels of up to 3 dB stronger than the desired peak visual carrier level. SMCTC suggests that "just perceptible" be defined as causing no more than a half-TASO step⁷ degradation in the signal.

11. Regarding LT-5, LT-6, and LT-7, concerning internal overload limits, DPU rejection, and the level of spurious signals fed back to the cable system, SMCTC believes that an even stronger DPU rejection is needed for signals below 30 MHz, to guard against DPU from AM broadcast stations, Amateur radio stations, and Citizens Class D stations, all of which could be in close proximity to cable subscribers. SMCTC suggests that a DPU immunity of 130 dBu (3 Volts/meter) is needed for below-30 MHz signals. SMCTC concurs with the proposed DPU immunity of 100 dBu (100 mV/m) for signals above 54 MHz. SMCTC believes it is imperative that the proposed limit of -37 dBmV for signals coupled back into the cable system apply to the frequency range from 5 MHz to 1,002 MHz, and not just for 54 MHz to 1,002 MHz signals. A 5 MHz lower limit is needed to ensure protecting 5 to

⁷ TASO is an acronym for Television Allocations Study Organization which was the industry group advising the FCC in 1959 on the technical principles which should be applied in television channel allocations. The TASO ratings of picture qualities are as follows:

| | | | |
|------|---|-----------|---|
| TASO | 1 | Excellent | The picture is of extremely high quality, as good as you could desire. |
| TASO | 2 | Fine | The picture is of high quality providing enjoyable viewing. Interference is perceptible. |
| TASO | 3 | Passable | The picture is of acceptable quality. Interference is not objectionable. |
| TASO | 4 | Marginal | The picture is poor in quality and you wish you could improve it. Interference is somewhat objectionable. |
| TASO | 5 | Inferior | The picture is very poor but you could watch it. Definitely objectionable interference is present. |
| TASO | 6 | Unusable | The picture is so bad that you could not watch it. |

30 MHz T-band upstream return channels.

12. Regarding LT-8, concerning tests to ensure that "cable ready" TVs and VCRs comply with Part 15 radiation limits, SMCTC believes that it would be insufficient to test a "cable ready" TV or VCR with only six evenly spaced input channels. Cable-ready TVs and VCRs will typically be fed 60 to 77 channels, or more, and not just 6 channels. The testing for unintentional radiation should be done using the full complement of 158 potential cable channels, each with a peak visual carrier level of +25 dBmV. Only under these conditions will the Commission ensure that a "cable ready" TV or VCR is not a potential Part 15 violator.

13. Regarding LT-9, concerning input selector switch isolation for "cable ready" TVs and VCRs, SMCTC agrees with Intermedia⁸ that the current 60 dB isolation standard applying over the 216 to 550 MHz frequency range should also be applied over the 550 to 1,002 MHz frequency range.

14. Regarding LT-10, concerning the maximum attenuation offered by "cable ready" TVs and VCRs with input selector switches, SMCTC believes that the proposed 6 dB figure is far too high. SMCTC believes that the through loss of an input selector switch should be no more than 1 dB.

15. Regarding LT-11, concerning whether "cable ready" TVs and VCRs, and component descramblers, should be subject to the more stringent Notification or Certification processes, rather than the present Verification process, SMCTC strongly encourages the Commission to require these devices to be subject to the more rigorous Certification process, wherein the manufacturer submits measurements demonstrating compliance, which the Commission then reviews and, if they document compliance with the pertinent portions of Part 15, issues an

⁸ Cable Report, at Page 56.



equipment authorization. The Verification process, wherein the manufacturer is supposed to make measurements of incidental radiation, but is not required to submit the results of those measurements to the Commission for review, is too tempting for some manufacturers to resist taking "short-cuts" to obtain an unfair competitive advantage over other manufacturers who correctly bear the time and expense burdens to ensure that their devices do not radiate in excess of Part 15 limits. The Commission's experience at trade shows, such as COMDEX, at which FCC agents have had to repeatedly confiscate non-complying devices, demonstrates that the more rigorous Certification process is needed.

16. Regarding LT-12, concerning use of only ANSI-compatible component descramblers and prohibiting cable operators from separately charging for component descramblers, SMCTC agrees with both of these Commission proposals.

17. Regarding LT-13, concerning adoption of a digital cable signal standard, SMCTC agrees that this needs to be done. If not, an even greater compatibility nightmare than the present problems between cable television hardware and consumer electronics equipment will inevitably result. However, SMCTC believes that the Commission's role should be limited to mandating that an industry-wide standard be developed and recognized by the Commission before *routine* use of digital transmission methods for *video and audio* (i.e., "television") distribution will be permitted by the Commission. To allow for testing and development of promising digital television technologies, including compression technologies, the Commission should liberally grant waivers to serious contender systems. But the Commission should be adamant about requiring a nation-wide standard before permitting the routine and wide spread use of digital cable *television* transmissions.

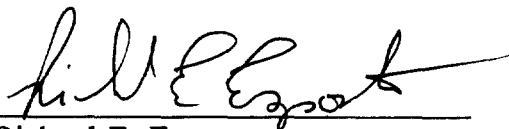


SUMMARY

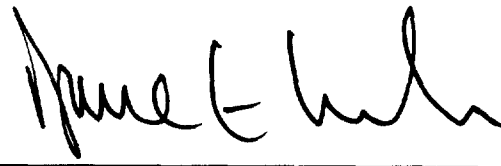
18. SMCTC concurs with the majority of the mitigation measures proposed by the Commission in this ET Docket 93-7 NPRM. In a few instances, SMCTC believes that more rigorous technical standards are needed and that a faster implementation schedule is needed. The SMCTC believes that the proposed rules, as fine-tuned by its suggestions, will ensure the most efficient and least disruptive solution to the current compatibility problems between cable television systems and consumer electronics.

Respectfully submitted,

Sacramento Metropolitan
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January 7, 1994



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VIDEO MAGAZINE ARTICLE

BY GEORGE MANNES

How you're caught in the crossfire over cable interface ills

SLOWED DOWN AT COMPATIBILITY GAP

One day, three months after Sam Perkins treated himself to a new 27-inch, cable-ready TV, he discovered he was no longer receiving most of his familiar cable channels. When he called up his system, Paragon Cable Manhattan in New York, he was told Paragon had just started scrambling his channels. To watch them, Sam would need to reinstall the Paragon cable box he thought his new "cable-ready" TV would let him do without.

The cable box proved to be a partial solution. Sam had to keep his TV permanently tuned to channel 3, while changing channels through the cable box. More annoying, he couldn't use his TV's picture-in-picture features, because he could only receive one channel at a time. Nor could he use the TV's channel ID feature, which runs on-screen channel labels (A&E, TNT and the like) that take the guesswork out of channel surfing.

Sam had lost the high-end features that sold him on his TV, which at \$900, cost more than comparable models without PIP and channel ID. What added a special edge, and irony, to Sam's anger is that he works for Time Warner, one of the owners of Paragon, the very outfit interfering with his TV watching (which is why Sam asked that we not use his real name).

If employees of companies that pro-

vide video services can't avoid such problems, what chance do other viewers have? Not much, to judge by the public outcry that led Congress to pass the 1992 Cable Act. While the bill is a grab-bag of mandates, one key goal, inspired by Vermont Senator Patrick Leahy's personal TV troubles, is to resolve the operating differences between cable systems and TVs and VCRs, especially better models.

The incompatibilities that fueled Sam's agita are at the heart of one of the most intractable, complex and contentious issues dividing the electronic turf shared by cable operators and consumer electronics manufacturers. It involves issues of technology, revenue and channel security. But while the two camps have feuded over solutions, and who should make them work, viewers have been left at the church door—stuck with an awkward

interface between cable TV and the equipment used to receive it, and victimized by confusing sales pitches and promises.

The Cable Act casts a ray of hope in seeking to assure "compatibility between television and video cassette recorders and cable systems." Subscribers, states the bill, ought to be able to watch one TV show while taping another, tape two consecutive programs on different channels, and enjoy "advanced television picture generation and display features," a phrase understood to include PIP displays.

Cable operators and consumer electronics manufacturers have been aware of the problem for years. But the two industries have been as stalemated as a gridlocked Congress, with neither side willing to spend the money needed to implement the proposals that could smooth out the interface.

The symbol of the problem is the cable box. Formally known as a converter/descrambler, the box is used in cable systems with scrambled signals to decode one channel at a time and transmit it to a TV or a VCR on channel 3 or 4. While a converter is essential for older TVs that can't tune into a cable lineup, most people with cable-ready TVs think it's a hassle to use the box to tune channels, instead of the tuner already in their TV sets.

ILLUSTRATION: PAUL HILL/ENR

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SHOWDOWN

to only a tiny minority of cable subscribers, would be expensive and risky, since distributing channels unscrambled makes it easier for people to steal cable signals. As for broadband descrambling, the cabling point out this exists only in the test lab.

More to the point, the cable industry argued these solutions placed the burden and the expense of compatibility solutions squarely on its shoulders, even though the cable bill says the cable operators' need to safeguard their signals should be taken into account. Signal security concerns "outweigh the desire to assure the functioning of certain optional features provided on some consumer electronics equipment, such as picture-in-picture," Time Warner told the FCC.

Turning the issue around, the cabling said the source of the discontent is deficient TVs and VCRs, components that are not fully compatible with cable TV as it presently exists—as well as the false belief by consumers that all TVs and VCRs will work the same way in all situations. "The real problem is consumer frustration caused by expectations that have been unrealistically raised by sales personnel whose ultimate objective is to sell more merchandise with the latest bells and whistles," argued the National Cable Television Association (NCTA), making its case to the FCC.

To ensure compatibility, cabling said TVs should include a "decoder interface" known as the EIA/ANSI 563 standard. Dubbed Multiport when it was developed in the 1980s, this plug on a TV or VCR would allow viewers to tune into a channel using the TV's or VCR's tuner, not a set-top cable box. All you would have to do is plug a decoder, supplied by your cable system, into the back of the set and forget about it. If you tune to a scrambled channel, the TV loops the signals out to the hidden "set-back" decoder plugged into the Multiport. The decoder descrambles the signal and returns it to the TV or VCR so it can be

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When you have to use a cable box with your TV, you can't watch one scrambled channel and record another, unless you rent a second converter for your VCR. You can't use your TV's channel ID feature. With some converters, you can't set your VCR to record successive shows on different channels. With others, you can if you program the box, but most people find it taxing enough to program their VCRs. If you tune through a single converter, you can't use PIP features.

This month, the Federal Communications Commission will tell Congress how compatibility should be guaranteed, permitting subscribers hassle-free use of the features on their TVs and VCRs. But the FCC's likely solution will disappoint people itching to junk their cable boxes. At best, it will hold out the likelihood of significant improvements for sophisticated video enthusiasts. But not for a few years. It will be 1996 at the earliest before you can return your converter, even then only if you buy a new TV.

IN THE CLEAR

The FCC's plan stems from the co-operation of the cable TV industry and consumer electronics manufacturers, two industries pressured by the Cable Act to work out the kinks.

Electronics makers favored fixes that would compel cable operators to deliver all channels to the home "in the clear," or completely unscrambled, which is not the case when a cable box is used and only one descrambled channel is available to viewers at a time. With channels in the clear, a subscriber could simply plug a cable into the back of a TV or VCR and start watching.

"The only way to give full function to consumers' investments in their existing equipment is if all authorized signals are simultaneously available," the Electronic Industries Association told the FCC earlier this year. The EIA, a trade group for electronics manufacturers, said cable system modifications "should be the primary focus of the Commission's efforts."

One way to deliver clear channels is by interdiction, a method with which all the signals through a cable system are sent unscrambled. A box outside the house, perhaps perched on a telephone pole, scrambles the channels a particular subscriber isn't paying for. Another method, called broadband descrambling, can simultaneously descramble blocks of channels rather than one channel at a time. This would let subscribers watch and tape any number or combination of channels.

Cablers didn't like either idea. Switching to interdiction, available now

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watched or taped. For practical purposes, the decoder is rendered invisible.

But electronics makers have already tried the Multiport. It appeared on TV sets, primarily by GE and RCA, in the mid '80s. Cable companies ignored it then, and electronics manufacturers blame cabling for the Multiport's failure. Trotting it out again, they argue, would unfairly burden themselves and the consumers who would presumably pay for multiported TVs—and it would do nothing for the millions of TVs and VCRs already around.

Failures like the Multiport, and the ill will it engendered, helped lead to today's impasse between the two industries, which is deep and venomous. But as disagreeable as cabling and manufacturers found each other's positions, what really upset them both was the thought of the government taking the decision out of their hands.

TOGETHER AT LAST

In January, responding to the Cable Act, they moved to reclaim the high ground. Executives from both industries assembled under the umbrella of the Cable-Consumer Electronics Compatibility Advisory Group, a mouthful of adjectives as large as the problem they were trying to digest. The committee's goal was to solve the vexing, lingering compatibility dilemma. If the two industries could jointly present a workable solution to the FCC, the chances were good it would be implemented, and the FCC would not look for more radical actions. Six months later, the committee delivered a detailed proposal with short- and long-term solutions.

First, manufacturers backed down from their position that all signals should be delivered in the clear. For the first time, they accepted the idea of some scrambling. While individual cable systems are free to implement interdiction or broadband descrambling, the committee says such techniques should not be mandatory.

Instead, the committee proposes several solutions that would become available within a year after the FCC sets its rules. While these "80- or 90-percent" solutions may not provide a fully transparent signal delivery system, as NCTA noted earlier this year, "they will improve compatibility and allow consumers to regain many of the extended features of their TVs and VCRs." Here are the key fixes:

- RF bypass circuitry would be added

to some cable boxes, or made available through a separate A/B switch. Bypass circuitry delivers all of a cable system's unscrambled channels so they can be tuned by the TV or VCR, allowing the necessary taping, watching, picture generation and display features. It's assumed that virtually all cable systems deliver a tier of broadcast stations unscrambled, along with public, educational and government access channels. Of course, this doesn't help viewers who want access to two scrambled channels, a situation the committee regards as "infrequently necessary."

- Converter/descramblers with built-in timers, already in some areas, would become more widely available. They allow sequential recording of different channels.

'What really upset the cabling and manufacturers was the thought of the government taking the decision out of their hands.'



- Dual-tuner converters with two tuners and two outputs would become available for people who want to watch and record two scrambled channels at the same time, or use two scrambled channels for PIP features. General Instrument's Jerrold Communications already makes one of these converters, called the Watch 'N' Record, although it's not widely used.

- Remote control programmers would be encouraged. The VCR Plus controller and other devices like Universal Electronics' One For All VCRPRO 4, make it easier for subscribers to timer-record several TV shows in succession, as long as their cable box is remote-controlled.

- VCRs with cable box controls would become more widely available. In fact, this is already happening. Some VCRs have infrared emitters that can

change the channels of an infrared-controlled cable box, performing the same function as a separate remote control programmer (see "Cable-Ready VCRs" in this issue).

A NEW STANDARD

As a long-term solution, the electronics manufacturers and cable operators have agreed to develop a standard for a "decoder interface." The interface would be at the back of a TV or VCR, and would let signals enter or exit for external descrambling. Cable operators would have to deliver signals compatible with the interface.

The idea has advantages. Because future cable boxes will be simpler than today's, all they'll need is a descrambler, not a tuner, a channel display and a remote-control sensor. They'll cost less to rent, and cabling say they won't charge an installation fee for the first one they supply to each home. More important, all TV and VCR functions will be restored to viewers.

Another advantage of the long-term agreement is that it will also lead to standards for the digital transmission of TV signals, heading off the possibility that, as the nation's cable systems move to digital transmission, cable operators, each choosing different schemes for digital TV, might create a new, even tougher compatibility morass just as the present one was being solved. The advisory committee's proposal is an attempt to prevent the creation of a new tower of Babel for different digital systems.

Digital TV standards may eventually eliminate the cable box, according to Bruce Huber, a chairman of the committee and vice president of Zenith's consumer electronics division. All cable subscribers would have to do is plug a "smart card" into their TVs or VCRs. The committee's solution, it's expected, will also make it simple to receive wide-screen, high-resolution digital HDTV when it arrives on cable.

But (there's always a but) you'll have to buy a new TV set, one with the decoder interface. A deal on installing one set-back cable box will sound only half-good to most videophiles, since they'll probably need two: one for the TV and one for the VCR, for PIP and simultaneous watching and recording.

Another disadvantage is time. Invisible set-back decoders, along with the new TVs and VCRs they would plug into, won't appear before 1996. A further delay may result because proposed 500-channel digital cable TV systems will have channel navigation systems to help viewers sort through the choices.

The committee's compatibility blueprint promises happier home video down the road, but it's the product of

two billion-dollar industries. "If it's worth noting, without the of consumers. "We think this is the best answer in the long run. It's not perfect," says Huber, but he argues that compatibility solutions "all have shortcomings."

For Sam Perkins, the industry's idea of a compromise also has shortcomings. It so happens his cable system is the first in the country to offer Jerrold's Watch 'N' Record dual-tuner descrambler. The box can restore his PIP, and includes a channel-ID feature to substitute for the one Sam can't use on his TV set. But Sam isn't willing to pay the extra \$30 annual rental the descrambler will cost. Instead, Sam bought a remote-controlled A/B switch for easy watching and taping of broadcast signals. As long as he can tape Letterman, he'll get by. ■

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